

### **REMARKS**

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 33-34, 36-44 and 46-50 are pending in the present application. Claims 33, 36, 42 and 46 are amended, and claims 26-32, 35 and 45 are canceled without prejudice or disclaimer by this amendment. Claims 33 and 42 are independent.

In the Official Action, claim 26 was rejected under 35 U.S.C. § 35, first paragraph; claim 26 was rejected under 35 U.S.C. § 35, second paragraph; claims 26, 30-31, 33-34, 37-38, 41-44, 47-48 and 50 were rejected under 35 U.S.C. § 102(b) as being anticipated by Emerson (U.S. Patent Pub. No. 2003/0020061); claims 27, 40 and 50 were rejected under 35 U.S.C. § 103(a) in view of Emerson and Edmonds (U.S. Patent Pub. No. 2002/0195606); claims 26 35 and 45 were rejected under 35 U.S.C. § 103(a) in view of Emerson and Uchida (Photoluminescence Characteristics and Pit Formation of InGaN Quantum Well Structures Grown On Sapphire Substrates by Low-Pressure Metalorganic Vapor Phase Epitaxy); and claims 32, 39 and 49 were rejected under 35 U.S.C. § 103(a) in view of Emerson and Kim (Structural and Optical Properties of InGaN/GaN Multi-Quantum Well Structures with Different Well Widths).

Independent claims 33 and 42 are amended to recite the features of dependent claims 35 and 45, respectively. Claims 36 and 46 are amended to maintain antecedent support. No new matter is added. The amendment does not raise a new issue requiring further search and/or consideration. Thus, Applicant requests entry of the present amendment.

In view of the cancellation of claim 26, all rejections of claim 26, and corresponding dependent claims, are moot. In view of the incorporation of claims 35 and 45 to claims 33 and

42, the rejection under 35 U.S.C. § 102(b) is moot. Similarly, all rejections under 35 U.S.C. § 103(a), except for the rejection in view of Emerson and Uchida, are moot.

As acknowledged by the Official Action, Emerson does not disclose or suggest an In<sub>x</sub>Ga<sub>1-x</sub>N/In<sub>y</sub>Ga<sub>1-y</sub>N multi-layer has a plurality of pits formed thereon. To cure this deficiency, the Official Action applies Uchida.

Uchida describes how a growth interruption, caused by closing group-III sources, affects the crystalline quality of InGaN/GaN quantum-well (QW) structures grown by metalorganic vapor phase epitaxy. In particular, Uchida describes that there are a large number of pits having a hexahedral cone morphology (V-defects) in the InGaN-based quantum well structures due to the propagation of threading dislocations from the underlying GaN epilayer grown on a sapphire substrate. The presence of such pits in an underlying QW layer strongly affects the In incorporation into the upper QW layers, leading to significant growth-rate variation in an InGaN QW layer and red-shifting of the PL spectra when a multiple-QW structure is grown.

However, Uchida only describes InGaN/GaN quantum-well structures (i.e., an active layer) having pits formed thereon. Contrary to the Official Action, Uchida does not disclose or suggest an In<sub>x</sub>Ga<sub>1-x</sub>N/In<sub>y</sub>Ga<sub>1-y</sub>N multi-layer having a plurality of pits formed thereon. Because the pits of Uchida are not on the multi-layer, Uchida (and Emerson) can not prevent the active layer being damaged by an externally-applied ESD as is possible with Applicant's claimed invention.

As none of the cited art, individually or in combination, discloses or suggests at least the above-noted features of independent claims 33 and 42, Applicant submits the inventions defined

by claims 33 and 42, and all claims depending therefrom, are not rendered obvious by the asserted references for at least the reasons stated above.<sup>1</sup>

**Conclusion**

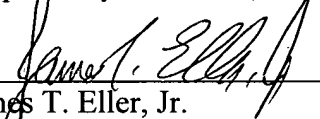
In view of the above amendment, applicant believes the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Michael E. Monaco, Reg. No. 52041, at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.147; particularly, extension of time fees.

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Respectfully submitted,

By   
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<sup>1</sup> MPEP § 2142 "...the prior art reference (or references when combined) must teach or suggest **all** the claim limitations.